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Number 12

The Newsletter of the Montana Natural Heritage Program

Spring 2012

## From the Director...

At any given time the Montana Natural Heritage Program (MTNHP) is involved in a few dozen projects. A common denominator that underlies its activities is to provide data in user-friendly and innovative web applications. These data are used widely by partner agencies and are increasingly valued across Montana.

Another aspect underlying much of its work is that MTNHP frequently collaborates directly with partner agencies. MTNHP has considerable collective expertise in rare plant and animal species of Montana, organismal biology in general, community ecology, wetlands and riparian

areas, and digital mapping and remote sensing.

In some projects MTNHP plays a relatively minor part, but in others we take a leading role. Partnerships increasingly represent a sound business model in an era of limited funding, especially since few agencies have expertise in all areas of natural resources management.

In this issue of *Optimolocus* we highlight some recent projects and activities from the past few months. You will notice that many involve collaborative contracts working with State, Federal, university,

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private, and other partners.

Let us know how the Montana Natural Heritage Program can assist in the completion of your project or partner with you in a future one.

As always, stay in touch.

Neil

## Information Systems and Services News

New enhancements to the Montana Field Guide include: 1) A "photographer search" feature for photos in the Guide taken by a particular photographer; 2) Addition of open water classes to the Ecological Systems Field Guide (<http://fieldguide.mt.gov/display/ES.aspx?id=9>); and 3) An "Add Observation" feature to the Animal Field Guide for users to add animal observations to the MTNHP databases (<http://mtnhp.org/observationform/>).

Allan Cox, as part of a grant application to the Montana Noxious Weed Trust Fund, gave a presentation about the MTNHP services to the Noxious Weed Trust Fund Board on February 29.

In early April the most recent NAIP aerial photography was added to all of the MapViewer toolsets. The 2011 photography data may be accessed under the Map Layers tab in the MapViewer.

In collaboration with staff of the Natural Resource Information System and Base

Map Service Center in the MT State Library, MTNHP will release a public map service of the MT Spatial Data Infrastructure Wetlands and Riparian Areas theme. It will be on-line in mid-April and will be part of the suite of MSDI map services now offered.

In mid-April MTNHP will release the fifth of its MapViewer Toolsets, the Wetlands and Riparian Areas data for Montana. The new toolset will allow users to view the newest published and provisional wetland and riparian data for MT as well as the historical National Wetlands Inventory (NWI) data. Users may also run summary reports for watersheds of interest. MapViewer is at <http://mtnhp.org/mapviewer/>.

Information Systems and Services has generated a large number of new range maps to lists in the Montana Field Guides and made additional refinements to the Reference client and database. Another

focus has been work towards the production of the new animal geodatabase.

A revised mapping application for the Basin-wide Wetland Assessment of the Milk-Marias watersheds is now available (<http://mtnhp.org/wetlands/assess/mm/>).

Allan Cox and Bryce Maxell attended the Montana Forest Council Meeting in Missoula in early March and gave a presentation focused on services and information the MTNHP provides, including how the forestry and wood products industry can make use of its information. The Forest Council helps the forest industry in Montana meet certification standards under the Sustainable Forestry Initiative.

MTNHP has increased its use of Facebook and Twitter to convey announcements and new information. The services are accessible anywhere on our web site by using the icons on the page footer.

# Zoology News

Paul Hendricks recently completed “A Guide to the Land Snails and Slugs of Montana” for the U.S. Forest Service. This 200+ page treatise is the first-ever summary of mollusks for Montana (<http://mtnhp.org/reports/MolluscField-Guide.pdf>).

Susan Lenard and Paul Hendricks completed a report to the US Army Corps of Engineers regarding bat use at Libby Dam, which included recommendations for mitigation of bats roosting at the Visitor Center.

An additional 101,298 point observation records for birds were added for inclusion in the 7th Edition of the Montana Bird Distribution book series, involving collaborations between MTNHP Project Biologist Coburn Currier, Zoologists, Susan Lenard, Paul Hendricks, and Bryce Maxell, Information Specialist Scott Blum, and Adam Petersen and Scott Story from MT Fish Wildlife and Parks.

Zoology staff reviewed and added more than 68,000 bird observations from the eBird database at the Cornell Lab of Ornithology to the animal observation database.

Information Services and Zoology staff conducted a “data gap” analysis to assess what counties and townships in Montana are missing animal observations for species that should be able to be documented in those areas.

Zoology staff created Google Groups list serves for the Montana Bat Working Group and the Montana Amphibian and Reptile Working Group to facilitate sharing of information on the status, distribution, and conservation of these species. Members of these working groups belong to a variety of state and federal agencies, tribal governments, universities, non-governmental organizations, and private consulting firms. Initial postings to the list serves include MTNHP-authored PowerPoint overviews on the status, distribution, data needs, and conservation issues faced by these species and can be viewed at <http://mtnhp.org/animal/presentations/presentations.asp>.

Bryce Maxell attended the Northern Rocky Mountain Grotto annual meeting for Montana cavers on Saturday March 3rd, 2012 at Lewis and Clark Caverns State Park and gave a presentation on Montana bat conservation issues and data needs, and encouraged participants to gather and report information on bat species they observe while caving. On Sunday, March 4th, Bryce worked with Kristi DuBois from MT Fish Wildlife and Parks on showing cavers what information to report while caving and how to install data loggers to help monitor temperature and relative humidity in areas where bats overwinter.

Bryce Maxell gave a presentation to the DEQ Coal Mine monitoring contractors in Billings in March at the request of DEQ to help streamline integration of data into MTNHP databases.

Zoology staff members continue to coordinate with MT Fish Wildlife and Parks, Montana Audubon, and the Montana Bird Records Committee on the 7th edition of the P.D. Skaar’s Montana Bird Distri-

bution book series. More than 800,000 observations were added to the database since the previous edition in 2003.

Bryce Maxell attended DEQ’s Wildlife Monitoring at Coal Mines conference in Billings on February 23rd 2012 and gave a presentation at their request to private consultants concerning best practices for integrating data they gather into the state-wide animal observation databases. Bryce was also requested by FWP to attend the Long-billed Curlew Initiative Workshop in Helena on February 2nd 2012 and give a presentation on the habitat suitability models that MTNHP has created that state and federal agencies, tribal governments, and nongovernmental organizations can use to prioritize their conservation efforts.

Susan Lenard gave a presentation entitled “Do Bats Sing?” on March 1, 2012 at Montana Wild, the FWP Spring Meadow Nature Complex in Helena. It focused on bat acoustics and how and why bats communicate. Approximately 55 members of the general public attended, including Cub Scouts and other school-aged children, college students, and adults.

Susan Lenard and Bryce Maxell gave a workshop on the acoustic monitoring of bats at the Montana Chapter of the Wildlife Society Meetings on February 27th. Participants included 22 individuals from state and federal agencies, tribal governments, universities, and the biological consulting industry. Two other presentations given at the Montana Chapter of the Wildlife Society Meetings included “Bat activity in riverine stands of native plains cottonwood and naturalized Russian olive in southeastern Montana” by Paul Hendricks and Susan Lenard and Senior Ecologist Linda Vance; and “Bat conservation issues and data needs given to the Montana Bat Working Group” by Bryce Maxell.

Paul Hendricks gave a presentation entitled “Life Near the Ground: the land snails and slugs of Montana” on February 22nd to an audience at the Montana Natural History Center in Missoula.

## Fun Fact

Amphibians generally employ three strategies to survive Montana’s harsh winters: (1) staying under the ice in various water bodies; (2) staying below the frost line in self-excavated burrows or those created by other small mammals; or (3) staying above the frost line and loading their tissues with glucose and glycogen to protect cells from damage during short periods of freezing. Plains Spadefoots (*Spea bombifrons*) are Montana’s champion burrower, which have been found burrowed 20 feet underground in Canada in order to stay below the frost line.



*Spea bombifrons* (Plains Spadefoot)

# Ecology News

Senior Ecologist and Spatial Analysis Lab Director Dr. Linda Vance recently joined the Systems Ecology program in the Division of Biological Sciences at UM as an Affiliate Faculty member.

Linda Vance, Karen Newlon, Cat McIntyre, Tara Luna, Sara Owen and Scott Mincemoyer

completed work on the National Wetland Condition Survey, conducted by the EPA with state, tribal and local partners across the US in 2011. All field sampling and plant identification in MT was

contracted to the MTNHP by the EPA, DEQ, Tetra Tech, Fort Peck Tribes, and the Confederated Salish and Kootenai.

Staff ecologists have mapped 1,168,649 acres of wetlands and 391,258 acres of riparian areas across MT. This work was supported by the BLM, USFS, USFWS, USCOE, EPA, MTDEQ, MT DOJ, MT Land Information Advisory Council, PPL-Montana, the Chippewa Cree, the Northern Cheyenne, and the Confederated Salish and Kootenai Tribes.

Claudine Tobalske and Ute Langner recently finished Montana Land Cover 2012, a 30m vegetation classification. Both the wetlands mapping and the Land Cover classification are part of the Montana Spatial Data Infrastructure.

Dave Stagliano has completed macroinvertebrate identification projects for Trout Unlimited, the Greater Gallatin Watershed Council, Westtech, and the BLM. He

presented results of mussel research to the MT Chapter of the Society for Conservation Biology and Pacific Northwest Native Freshwater Mussel Workgroup. Dave is developing plans with Salish and Kootenai College

and UM to study invasive flowering rush in Flathead Lake next summer.

Paul Hendricks, Susan Lenard and Linda Vance submitted a paper to *Natural Areas Journal* comparing bat activity in riparian forests dominated by native cottonwood or invasive Russian Olive, which concluded that bat activity was greatly reduced in riparian forests invaded by Russian Olive. The research was part of a larger study by Drs. Vance and Tobalske that used high-resolution aerial imagery to map and

quantify land use and vegetation impacts along Montana's large rivers.

Collaborating with the Wyoming Natural Diversity Database and the Colorado Natural Heritage Program, Linda Vance and Karen Newlon completed a three-year study on the range of natural variability in minimally disturbed Rocky Mountain wetlands. Ongoing projects related to this work include remote sensing and field-based analysis of fens and other groundwater-dependent ecosystems; characterization of the distribution and condition of headwater wetlands in the Upper Missouri River Basin; and rotating basin assessments of Montana's wetlands.

Karen Newlon and Maya Daurio completed a pilot project for the Yellowstone River Conservation district that focuses on change in riparian areas using historic and contemporary aerial photographs.

Linda Vance, Darlene Patzer and Neil Snow worked with colleagues at the U.S. Forest Service Region 1 office to produce a new 5-year umbrella Partnership Agreement to facilitate collaborative projects. Melissa Hart is currently working with USFS GIS and Science staff to complete a General Technical Report on the Integrated Restoration and Protection Strategy for Region 1, for which MTNHP's Spatial Analysis Lab provided data development and analysis.



Ecologist Sara Owen identifying wetland soils in southwest Montana's Bitterroot NF.

## Staff Spotlight - Martin Miller

If you have ever made a data request from MTNHP, you've probably interacted with Martin Miller. If so, you know that he goes the distance in taking care of your requests. But what you may not know is just how far the distance Martin is willing to go. When he's done filling requests and it's time to get out of town, his preferred mode is ultramarathon running. Over a 20 year period, Martin has finished over 70 ultramarathon events, ranging from 50 km to 100 miles.

Martin's family includes wife Janice, who also once worked for MTNHP but now spends her time as a massage therapist and photographer, and sons Kennan in Bozeman, and Philip in Portland, Oregon. One-year old grandson Oliver, also in



Martin running the Devil's Backbone along the Gallatin Crest in 2010.

Portland, has made his granddad proud by taking a liking to stair-climbing; he is expected to graduate soon to hills and be

off to the races!

While Martin's early training and career was as a weatherman, he started volunteering for the Montana Natural Heritage Program in 1995, working with bird data for the 5th edition of P.D. Skaar's Montana Bird Distribution book. He became a full time data wrangler for the program in 1996. In those days, Species Occurrences were plotted on paper quad maps using adhesive dots, using a mylar overlay to calculate the latitude and longitude. While advancements in GIS have changed the workplace over time, Martin's steady and careful attention has remained the same. From responding to your data requests to conquering the next hill, Martin goes the distance!



# Botany News

Scott Mincemoyer released an updated version of the "Checklist of Montana Vascular Plants" ([http://mtnhp.org/docs/021412\\_MT\\_Plant\\_List.pdf](http://mtnhp.org/docs/021412_MT_Plant_List.pdf)). He is also assessed the vulnerability of 70 globally rare plant species using NatureServe's Climate Change Vulnerability Index.

MTNHP staff that attended a Rare Plant Conservation conference in Helena in mid-February, which was cosponsored by MTNHP, included Kyla Zaret, Karen Newlon, Neil Snow, and Scott Mincemoyer.



Botanist Scott Mincemoyer surveying for *Howellia aquatica*, a federally threatened plant species.

er. Scott also led an all-morning session for conference participants to discuss MT plant Species of Concern.

MTNHP added a digital version of the 1993 "Second Checklist of Montana Mosses" to its website. The most current checklist of Montana mosses, it is often requested by botanists around the state ([http://mtnhp.org/docs/1993\\_Moss\\_Checklist.pdf](http://mtnhp.org/docs/1993_Moss_Checklist.pdf)).

Scott Mincemoyer, Martin Miller, and Coburn Currier added 80 rare plant observations to the database, approximately 525 lichen species to the database and Field Guides, and several dozen new images to the Field Guides. Scott also reviewed the ranks of several dozen plant species.

Scott is working with the Rocky Mountain Herbarium (RM) at the University of Wyoming to import data for some 30,000 plant specimens collected in Montana by RM in recent decades.

## Fun Fact

Montana has two species of larch, *Larix occidentalis* (Western Larch) and the higher altitude *L. lyallii* (Subalpine Larch). Larches are the only native cone-bearing trees in the state that drop their needles annually, unlike pines, firs, hemlock, and spruce.



*Larix occidentalis* (Western Larch)



*Larix lyallii* (Subalpine Larch)

### Data Total October - March

The Montana Natural Heritage Program continuously acquires new biological data.

#### New observations...

	Via MTNHP	via Web	Total
Animals	112,152	639	112,791
Plants	307	-	307
Grand Total			113,098

#### Species Occurrences created...

	Animals	Plants	Total
	151	130	281

#### Updated records...

	Animals	Plants	Total
Point Obs:	127,825	64	127,889
Species Occ:	654	24	678

#### Total current...

	Animals	Plants	Total
Point Obs:	1,218,166	11,169	1,229,335
Species Occ:	37,803	7,389	45,192

## Montana Natural Heritage Program

### Staff

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 Coburn Currier, Project Biologist  
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